# KIM & CHANG

### CONFIDENTIAL CLIENT COMMUNICATION

Korean Patent Application No. 10-2006-7009261

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#### 2. Cited Reference 3

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# (54) SEMICONDUCTOR PACKAGE WITH HEAT SPREADER USING COOLING MATERIAL

### [ABSTRACT]

A semiconductor package with heat spreader using cooling material is provided to release heat more effectively by installing an efficient cooling material inside the package.

The semiconductor package with heat spreader using cooling material comprising, a semiconductor chip including a integrated circuit, a substrate to which the semiconductor chip is attached, a conductive wire to connect the semiconductor chip and the substrate, an encapsulation member to encapsulate parts of the semiconductor chip and the conductive wire, a plurality of drawout terminals to draw out electric signals which pass through the semiconductor chip and the substrate, and a cooling material tank which is attached to the outside of the encapsulation member, includes a storage, and stores the cooling material in the storage, is provided.

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# [REPRESENTATIVE CLAIMS]

- 1. A semiconductor package with heat spreader using cooling material, comprising: a semiconductor chip including a integrated circuit;
  - a substrate to which the semiconductor chip is attached;
  - a conductive wire to connect the semiconductor chip and the substrate;
- an encapsulation member to encapsulate parts of the semiconductor chip and the conductive wire;
- a plurality of drawout terminals to draw out electric signals which pass through the semiconductor chip and the substrate; and
- a cooling material tank which is attached to the outside of the encapsulation member, includes a storage, and stores the cooling material in the storage.